

1. A carrier head for chemical mechanical polishing of a substrate, comprising:
a base; and

a flexible membrane extending beneath the base to define a chamber and provide a
mounting surface against which a substrate may be positioned, the mounting surface

5 including a low adhesive material to which the substrate does not readily adhere.

2. A carrier head for chemical mechanical polishing of a substrate, comprising:
a base, and

a flexible membrane extending beneath the base to define a chamber, the flexible

10 membrane including a core of a first material and an outer layer of a second material having
a lower adhesion to the substrate than the first material, an exposed surface of the outer layer
providing a mounting surface for the substrate.

15 3. The carrier head of claim 2, wherein the first material is an elastomer and the
second material is a polymer.

4. The carrier head of claim 2, wherein a thickness of the outer layer is between
about 0.1 and 2.0 microns.

20 5. The carrier head of claim 2 wherein a coefficient of friction of the mounting
surface against the substrate is less than about .5.

6. The carrier head of claim 2, wherein the second material is polyparaxylylene.

25 7. The carrier head of claim 2, wherein the second material is deposited on the
first material.

8. The carrier head of claim 7, wherein the second material is deposited on the
first material by gas phase polymerization coating.

9. The carrier head of claim 2, wherein the second material is deposited on selected portions of the first material to form a pattern.

10. A carrier head for chemical mechanical polishing of a substrate, comprising:

5 a base; and

a flexible membrane extending beneath the base to define a chamber, the flexible membrane including an inner portion formed of a first material and an outer portion formed of a second material, the outer portion providing a mounting surface against which a substrate may be positioned and the second material having a lower adhesion to the substrate than the first material.

10 11. A flexible membrane for a carrier head, comprising:

a core of a first material; and

15 an outer layer of a second material formed over the core, an exposed surface of the outer layer providing a mounting surface for a substrate, the second material having a lower adhesion to the substrate than the first material.

12. A method of moving a substrate with a carrier head, comprising:

positioning a substrate against a mounting surface of a flexible membrane of a carrier 20 head, the flexible membrane defining a pressurizable chamber within the carrier head, the flexible membrane including a low adhesion material to which the substrate does not readily adhere;

evacuating the chamber to form a seal between the mounting surface and the substrate;

25 placing the substrate on a receiving surface; and

pressurizing the chamber to break the seal between the substrate and the mounting surface.

13. A method of making a flexible membrane for a carrier head, comprising:

30 providing a core formed of a first material;

depositing a second material onto the core to form a layer, the layer providing a mounting surface for a substrate, the second material having a lower adhesion to the substrate than the first material.

5 14. The method of claim 13, wherein the providing step includes providing a core formed of an elastomer.

10 15. The method of claim 13, wherein the depositing step includes depositing polymer.

15 16. The method of claim 13, wherein the depositing step includes depositing polyparaxylylene.

20 17. The method of claim 13, wherein the depositing step forms the layer with a thickness between about 0.1 and 2.0 microns.

25 18. The method of claim 13, wherein the depositing step forms the layer with coefficient of friction against the substrate less than about .5.

19. The method of claim 13, wherein the depositing step includes gas phase polymerization coating.

20. The method of claim 13, wherein the depositing step forms the layer on selected portions of the first material to form a pattern.